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APPLICATION FOR UNITED STATES PATENT

**METHOD FOR MAKING LEATHER TILES AND TILES THUS OBTAINED**

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FIELD OF THE INVENTION

The present invention relates to leather tiles and leather skirting boards for room  
25 lining and a method for making the tiles.

## BACKGROUND OF THE INVENTION

Leather tiles have been made occasionally; one of the main problems met is the leather thickness irregularity that affects the final surface. The word leather in the following description is referred to chrome leather, tanned leather, hide, imitation leather, etc.

5 Even when a leather sheet is arranged on a wooden base, as is described in US Patent No. 4,864,790, (which is incorporated herein by reference) the problem is not solved; on the contrary, the irregularity of the leather sheets are much more enhanced on the wooden layer.

Similarly, a material called salpa, i.e., boards of pressed chips of hide/leather, is used as base for leather tiles meeting the same problems. Moreover, a problem of irregularity is  
10 also present along the contact sides between adjacent leather tiles, with negative aesthetical effect on the final lining. Another problematic aspect is the decoration of the leather tiles that, since they have to be waterproof, they cannot have incisions or cuts, which could be not easily treated, and would be occasion of dirt accumulation.

## SUMMARY OF THE INVENTION

15 It is therefore a feature of the present invention to provide a method for making leather tiles for eliminating the thickness irregularity of the leather sheets and to obtain a uniform lining.

It is another feature of the present invention to provide a method for making leather tiles to facilitate the side matching of the leather tiles with one another when laying the  
20 lining.

It is a particular feature of the present invention to provide a method for making leather tiles suitable for providing on them desired fancy decorations.

It is a further feature of the present invention to provide a leather tile obtained with  
5 this method and that has the same advantages.

These and other features are demonstrated achieved by the method for making leather tiles, according to the present invention, whose feature is that it comprises the steps of:

a) preparing a semifinished leather tile having a first face and a second face;

10 b) introducing the semifinished leather tile in a plastic resin injection mould, with the first face oriented towards the bottom of the mould; introducing the plastic resin in the mould, the resin filling the remaining free space; and

c) hardening the plastic resin that becomes integral to the semifinished leather tile.

Before the step of introducing the semifinished leather tile in the mould a step can be  
15 provided of making, e.g., by milling, at least one through hole of predetermined shape suitable for connecting the first face to the second face of the semifinished leather tile.

Therefore, during the step of introducing the plastic resin in the mould, the resin fills the or each hole of the semifinished leather tile. This way, at the end of the work the hardened resin is visible on the first face since it fills the hole, which can form a design, a  
20 script, a decoration, etc.

Advantageously, the mould is shaped to allow a portion of the resin to harden on either all or only a part of the second face of the semifinished leather tile. In both cases, the resin is anchored very solid to the semifinished leather tile and cannot be released from the first face, and creating a level rigid layer.

5           In particular, the hardened resin may have a side portion exceeding the second face of the semifinished leather tile, thus creating an exterior finishing edge of resin that surrounds the leather.

Preliminarily to the step of introducing the semifinished leather tile in the mould a step can be provided of machining the side edges for facilitating the approach of the leather  
10 tiles to one another when laying the lining. In particular, the machining step provides beveling the edge of the second face.

According to another aspect of the invention, a leather tile has a first face, a second face and a layer of resin fixed to the second face.

Advantageously, the tile has at least one through hole having predetermined shape  
15 between the first face and the second face, the or each hole being filled with resin in order to form when hardened a pattern, a script, a decoration according to said predetermined shape.

In particular, the hardened resin can extend from the hole to all or part of the surface of the second face, so that the resulting tile has in any case a first layer of leather and a second layer of hardened resin that mechanically prevents any release of resin from the first  
20 face. The layer of resin has the object to strengthen the tile and to level its thickness.

Advantageously, the hardened resin may have a side portion exceeding the second face of the semifinished leather tile, thus creating an exterior finishing edge that surrounds the leather.

Furthermore, the tile can be provided with machined side edges, in particular beveled edges, which make easier the approach of adjacent leather tiles when laying the lining.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and the advantages of the method according to the invention for making leather tiles will be made clearer with the following description of an embodiment thereof, exemplifying but not limitative, with reference to the attached designs, wherein:

Fig. 1 shows a top plan view of a possible embodiment of a leather tile according to one exemplary embodiment of the present invention;

Fig. 2A shows a cross sectional view according to arrows II-II of the leather tile of Fig. 1;

Figs. 2B, 2C and 2D show a cross sectional view of several alternative exemplary embodiments of the leather tile of Figs. 1 and 2A;

Fig. 3 shows a perspective view of a leather tile, according to the invention, before moulding plastic resin thereon;

Fig. 4 shows diagrammatically a cross sectional view of a leather tile in the step of application of a plastic resin layer, by means of injection moulding;

Fig. 5 shows the tile of Fig. 3 after the application of a plastic resin injection;

5 Fig. 6 and shows a cross sectional view of an alternative exemplary embodiment of the leather tile with plastic resin injection of Fig. 5; and

Fig. 7 shows a perspective view of an alternative exemplary embodiment of the leather tile with plastic resin injection of Fig. 5; and

Fig. 8 shows a floor lined with the leather tiles of Fig. 5.

## 10 DESCRIPTION OF A THE INVENTION

With reference to Figures 1 and 2A, according to one exemplary a possible embodiment of the invention, a leather tile 10 comprises a semifinished leather tile 1 having a first face 2, a second face 3, side edges 4 and a hole 5. In particular, hole 5 has a desired shape and extends between first face 2 and second face 3 of tile 1. Even if the semifinished  
15 leather tile 1 shown in Figure 1 has only a hole 5, it may have a plurality of holes, of desired shape, which define scripts, decorations, designs, etc.

As shown in Figure 2A in a cross sectional view according to arrows II-II of tile 10, hole 5 is filled with hardened resin 7 in order to show, on first face 2, a portion of resin 6 matching hole 5.

In particular, in the case shown in Figures from 2A to 2C, the hardened resin 7 extends from first face 2 to second face 3 up to lining completely the lower surface thereof. This way, the resulting tile 10 comprises a leather layer 1 to which a layer of plastic resin 7 of a certain thickness is integral. This allows to level the lower surface of leather layer 1 and  
5 to level the overall thickness.

This same last result is obtained with the embodiment of Figure 2D, without hole and then without through resin injection.

A first aesthetical effect is obtained when leather layer 1 and plastic resin layer 7 have the same extension Figures. 2A and 2B; in this case the sole leather face 2 is visible  
10 from the above and, if present, the pattern in plastic resin 6.

A second aesthetical effect is obtained when the layer of resin 7 has a side portion 8 exceeding face 3, thus forming substantially an exterior edge that surrounds the leather layer of tile 1 Fig. 2C.

In the first case, to facilitate the approach between adjacent leather tiles when laying  
15 the lining, the leather layer 1 of tile 10 can be subject to machining the side edges 4 Figure 2B, in particular making a bevel.

With reference to Figures from 3 to 5, according to the invention, one exemplary method for making a tile 1 as above described provides the following steps.

A semifinished leather tile 1 is previously cut according to a desired shape, for  
20 example rectangular, and, as in the present case, at least one through hole 5 is milled.

The semifinished leather tile 1 is then put into a mould 20 for plastic resin injection, formed by two mould halves 21 and 22, with first face 2 oriented towards the bottom of mould 20 Figure 4. In mould 20 the plastic resin is then injected, through a channel 23, thus filling the remaining free space adjacent to semifinished leather tile 1. In particular, the resin  
5 fills hole 5 and recess 24 within half mould 21 up to filling it completely. This way, the pattern 6 is formed visible on first face 2 of tile 1 and a layer 7 of hardened resin is formed fixed to face 3 that levels its thickness Fig. 5.

In an alternative embodiment, as shown in Figures 6 and 7, hole 5 has a first portion 5' that extends starting from face 2 for a certain depth and has a larger second portion 5''  
10 that extends from the first portion 5' up to face 3. In this case, during the injection the resin fills only hole 5 and the hardened resin in second portion 5'' of hole 5 is a mechanical fastening to leather layer 1. This solution can be used, for example, when a very thin leather tile 10 is requested.

Finally, in Fig. 8 a floor 50 is shown partially lined with leather tiles 10. Of course  
15 leather tiles 10 can be used also for lining walls 60, or can be used as skirting boards 110 of rectangular shape.

Obviously, the tiles, in addition to the square and rectangular shape may have also hexagonal, octagonal, triangular shape, etc.

The foregoing description of a specific embodiment will so fully reveal the invention  
20 according to the conceptual point of view, so that others, by applying current knowledge, will be able to modify and/or adapt for various applications such an embodiment without further research and without parting from the invention, and it is therefore to be understood



that such adaptations and modifications will have to be considered as equivalent to the specific embodiment. The means and the materials to realise the different functions described herein could have a different nature without, for this reason, departing from the field of the invention. It is to be understood that the phraseology or terminology employed  
5 herein is for the purpose of description and not of limitation.